

APPENDIX

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1117

TRIBUTOXYETHYL PHOSPHATE

)-hydroxypred-

powder. Mp
lightly soluble in
n dimethylform-

the acetamide.

129C, (hydrate)
le in water, ace-
tr, cold benzene,
ether. Combust-

ate, wetting and
elopers, organic

chloride.

ystals. Mp 119C
soluble in alcohol
c.
sion with ethyl-
nge resins, wet-
chic developers,
bber chemicals.

See melamine.

id. D 0.79-0.80
st 98.0%, 95%
215F (101.6C).
n water; soluble

le and ammonia.

al preparations.

aintly aromatic.
KC, flash p 270F

intly alcoholic.
-280C, flash p
id ether. Com-

acid and amyl

iquid. Boiling

range 305-345C (5 mm Hg), mp 62-63C. Insoluble
in water. Combustible.

Use: Plasticizer.

tri-*p*-anisylchloroethylene.

triarylmethane dye. Any of a group of dyes
whose molecular structure involves a central carbon
atom joined to three aromatic nuclei. CI numbers
range from 42000 to 44999. The color is due in part
to the aromatic rings and to the chromophore groups
=C=NH and =C=N-. The members of this class
function as basic dyes for cotton, using tannin as a
mordant, or if they contain sulfonic acid groups, as
acid dyes for wool and silk. Examples are malachite
green and methyl violet.
See triphenylmethane dye.

s-triazine derivatives. See ammeline;
ammeline; melamine.

s-triazine-3,5(2H,4H)dione riboside. See
6-azauridine.

s-triazine-2,4,6-triol. See cyanuric acid.

triazole. C₂H₃N₃. A five-membered ring com-
pound containing three nitrogens in the ring.
Use: Suggested as photoconductors in copying sys-
tems.

triazone resin. One of a class of amino resins
produced from urea, formaldehyde, and a primary
amine.
Use: Textile and fabric treatment.
See dimethylolethyltriazone.

tribasic. See monobasic.

tribromoacetaldehyde. (bromal). CBr₃CHO.
Properties: Oily, yellowish liquid. D 2.66, bp 174C.
Soluble in water, alcohol, or ether. Combustible.
Derivation: (1) By adding bromine to a solution of
paraldehyde in ethylacetate. (2) By adding bromine
to absolute alcohol, fractionating, treating the frac-
tion boiling at 165C with water, and distilling.
Hazard: As for bromine.
Use: Organic synthesis.

tribromoacetic acid. CBr₃COOH.
Properties: Colorless crystals. Mp 135C, bp
245-250C. Soluble in water, alcohol, or ether. Com-
bustible.
Derivation: By oxidizing tribromoacetaldehyde
with nitric acid.
Hazard: As for bromine.
Use: Organic synthesis.

tribromo-*tert*-butyl alcohol. (acetone-bro-
moform). CBr₃C(CH₃)₂OH.
Properties: Fine, white, prismatic crystals; camphor

odor and taste. Mp 176C. Slightly soluble in water;
soluble in alcohol and ether. Combustible.

Derivation: Reaction of acetone and bromoform
with solid potassium hydroxide.

Hazard: As for bromine.

Use: Vinyl chloride polymerization.

tribromoethanol. (1,1,1-tribromoethyl alco-
hol).

CAS: 75-80-9. CBr₃CH₂OH.

Properties: White crystals or powder; slight aromat-
ic odor and taste. Mp 79-82C, bp 94C (11 mm Hg).
unstable in air and light. Slightly soluble in water;
soluble in alcohol, ether, benzene, and amylene hy-
drate; aqueous and alcoholic solutions decompose
on exposure to light. Combustible.

Grade: NF.

Derivation: By reduction of tribromoacetaldehyde
with aluminum isopropylate.

Use: Medicine (basal anesthetic).

tribromomethane. See bromoform.

1,1,1-tribromo-2-methyl-2-propanol.

CBr₃C(CH₃)₂OH.

Properties: Fine, white crystals. Mp 176-177C. Sol-
uble in water, methanol, ether. Combustible.

Use: Organic synthesis.

tribromonitromethane. See bromopictin.

tribromophenol. See bromol.

1,2,3-tribromopropane. (allyl tribromide).

CAS: 96-11-7. BrCH₂CHBrCH₂Br.

Properties: Colorless liquid. D 2.43, mp 16C, bp
220C, refr index 1.584. Soluble in alcohol and ether;
insoluble in water.

Derivation: Gamma-ray initiated reaction of bromo-
trichloromethane with allyl bromide.

Use: Nematocide.

3,4',5-tribromosalicylanilide. (tribromasa-
lan).CAS: 87-10-5. Br₃C₆H₂(OH)C(O)NHC₆H₄Br. An
active antiseptic.

Use: Soaps.

Hazard: A suspected carcinogen. Use in cosmetics
prohibited (FDA).

tributoxyethyl phosphate.

[CH₃(CH₂)₃O(CH₂)₂O]₂PO.

Properties: Slightly yellow, oily liquid. D 1.020
(20C), fp -70C (viscous liquid), boiling range
215-228C (4 mm Hg), flash p 435F (223C), refr
index 1.434 (25C). Insoluble or limited solubility in
glycerol, glycols, and certain amines; soluble in
most organic liquids. Combustible.

Use: Primary plasticizer for most resins and elasto-
mers, floor finishes and waxes, flame-retarding
agent.

able material;

azole.

otetrazole.

).

90C, distills at
atly soluble in
le in hot water

etate and con-
thiazole, medi-

See

rbazide.

m-toluidine;

ee ammelide.

le).

Mp 156-159C.

nitted. TLV: 0.2
gen.

acid. See

)-2-
opanoic acid.

iee

r a low-tempera-
nine and acetone.
.13, mp 85-95C.
ethylene dichlo-
oline.
ht-colored rubber

-amino-1,2,4-tria-

"Ammate" [Du Pont]. TM for ammonium sul-
famate in various grades.

Hazard: See ammonium sulfamate.

Use: Nonselective herbicide.

ammelide. (6-amino-s-triazine-2,4-diol; cyanu-
ramide).

NC(OH)NC(OH)NC(NH₂).

Properties: Crystalline solid. Mp (decomposes). In-
soluble in alcohol; slightly soluble in hot water.
Similar to melamine and suggested for melamine-
type (amino) resins.

ammeline. (4,6-diamino-s-triazine-2-ol; cyan-
urdiamide).

NC(OH)NC(NH₂)NC(NH₂).

Properties: Crystalline solid. Mp decomposes. In-
soluble in water and alcohol. A compound similar to
melamine.

Use: In melamine-type resins and in special high-
temperature lubricants.

ammine. A coordination compound formed by
the union of ammonia with a metallic substance in
such a way that the nitrogen atoms are linked direct-
ly to the metal. Note the distinction from amines in
which the nitrogen is attached directly to the carbon
atom.

See cobaltammine; coordination compound.

ammonia, anhydrous.

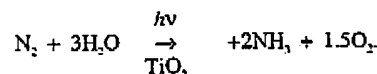
CAS: 7664-41-7. NH₃.

Properties: Colorless gas (or liquid); sharp, intense-
ly irritating odor; lighter than air; easily liquefied by
pressure. Bp -33.5C, fp -77C, vap press of liquid
8.5 atm (20C), sp vol 22.7 cu ft/lb (70C), d (liquid)
0.77 at 0C and 0.6819 at bp. Very soluble in water,
alcohol, and ether. Autoign temp 1204F (650C).
Combustible.

Note: Ammonia is the first complex molecule to be
identified in interstellar space. It has been observed
in galactic dust clouds in the Milky Way and is
believed to constitute the rings of the planet Saturn.

Derivation: From synthesis gas, a mixture of carbon
monoxide, hydrogen, carbon dioxide, and nitrogen
(from air) obtained by steam reforming or by partial
combustion of natural gas (U.S.), or from the action
of steam on hot coke (Haber-Bosch process). The
latter method is used in South Africa. After removal
of the carbon oxides, the gas composition is adjusted
to a ratio of 3 parts H₂ to 1 part N₂, and passed to the
synthesis unit over a catalyst at pressures of about
300 atm and temperature of approximately 500C.
The catalyst most widely used is produced by fusion
of iron oxide (Fe₃O₄) containing aluminum oxide
and potassium oxide as promoters, followed by re-
duction of the oxide. Chemisorption of the nitrogen
on the catalyst surface is the rate-controlling step.
Other methods include use of refinery off-gases,

coke-oven gas, electrolytic hydrogen, and calcium
cyanimide. Ammonia has been made experimental-
ly using solar energy to activate the reaction



Ammonia is formed as an end product of animal
metabolism by decomposition of uric acid.

Grade: Commercial 99.5%, refrigerant 99.97%.

Hazard: Inhalation of concentrated fumes may be
fatal. TLV: 25 ppm. Moderate fire risk, explosive
limits in air 16 to 25%. Forms explosive compounds
in contact with silver or mercury.

Use: Fertilizers, either as such or in the form of
compounds, e.g., ammonium nitrate; manufacture
of nitric acid, hydrazine hydrate, hydrogen cyanide,
urethane, acrylonitrile, and sodium carbonate (by
Solvay process); refrigerant; nitriding of steel; con-
densation catalyst; synthetic fibers; dyeing; neutral-
izing agent in petroleum industry; latex preserva-
tive; explosives; nitrocellulose; urcaformaldehyde;
nitroparaffins; melamine; ethylenediamine; sulfite
cooking liquors; fuel cells; rocket fuel; yeast nutri-
ent; developing diazo films.

See ammonium hydroxide; Haber, Fritz; synthesis
gas.

ammonia, aromatic spirits. A mixture of
10% of ammonia in alcohol. Strong, suffocating
odor.

Hazard: Irritant to mucous membranes. Flammable,
keep tightly sealed.

Use: Medicine (respiratory stimulant).

ammonia-soda process. See Solvay process.

ammoniated mercury chloride. See
mercury, ammoniated.

ammoniated ruthenium oxychloride. See
ruthenium red.

ammoniated superphosphate. Fertilizer pro-
duced by mixing ammonia with superphosphate in
the ratio of 5 parts to 100.

ammonio-cupric sulfate. See copper
sulfate, ammoniated.

ammonio-ferric oxalate. See ferric
ammonium oxalate.

ammonio-ferric sulfate. See ferric
ammonium sulfate.

ammonium acetate.

CAS: 631-61-8. NH₄(C₂H₃O₂).

Properties: White, deliquescent, crystalline mass.
Mp 114C, d 1.073. Soluble in water and alcohol. Mp
114C, d 1.073. Combustible.

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MELAMINE

meclizine hydrochloride. (1-*p*-chlorobenzhydryl-4-methylbenzylpiperazine dihydrochloride).
CAS: 36236-67-6. $C_{21}H_{24}ClN_2 \cdot 2HCl \cdot H_2O$.

Properties: White or yellowish powder or crystals; slight odor. Insoluble in water and ether; very soluble in chloroform, pyridine, and acid-alcohol-water mixture; slightly soluble in dilute acids and alcohol.

Grade: USP.

Use: Medicine (antihistaminic).

meclofenoxate hydrochloride.

CAS: 3685-84-5. $C_{17}H_{17}Cl_2NO_3$.

Properties: Colorless crystals. Mp 135C. Soluble in water, insoluble in benzene.

Use: Plant growth hormone.

"Mecopex" (Morton). TM for a broad-leaf herbicide containing potassium salt of mecoprop (31.5%).

Hazard: Sec mecoprop.

mecoprop. (2-(4-chloro-2-methylphenoxy)propionic acid; MCPP; CMPP).

CAS: 93-65-2. $C_{10}H_9ClO_2$.

Properties: Solid. Mp 93-94C. Insoluble in water; soluble in alcohol, acetone, and ether.

Hazard: Toxic by ingestion and inhalation, irritant to skin and eyes.

Use: Herbicide.

medicinal chemistry. A subdivision of chemistry that deals with the effects of drugs and pharmaceuticals on the human body and on various infective organisms, and with the synthesis of compounds specifically for certain diseases, such as antimalarials and antihypertensive agents. It also is concerned with immunology, hormone activity, etc. See clinical chemistry.

medlure. (*sec*-butyl-4-(or 5)-chloro-2-methylcyclohexanecarboxylate). $C_{14}H_{25}ClO_2$.

Properties: Liquid. Bp 78-79C (0.25 mm Hg). Insoluble in water; soluble in most organic solvents.

Use: Insect attractant.

medroxyprogesterone acetate. (17-hydroxy-6a-methyl-preg-4-ene-3,20-dione-17-acetate).

CAS: 71-58-9. $C_{25}H_{38}O_4$. A hormone derivative.

Properties: White to off-white, crystalline powder; odorless. Melting range 200-208C. Stable in air. Insoluble in water; freely soluble in chloroform; sparingly soluble in alcohol.

Use: Medicine (injectable contraceptive).

Meerwein-Ponndorf-Verley reduction.

Reduction of aldehydes or ketones to the corresponding alcohols with aluminum alkoxides.

mega-. Prefix meaning 10^6 units (symbol M), e.g., 1 megaton = 1,000,000 tons.

megatomoic acid. (*trans*-3,*cis*-5-tetradecadienoic acid). The active ingredient of the sex attractant in the female carpet beetle. Research is underway on synthesis of this substance to be used as a lure in control of this pest.

megaton. One million tons, usually used in defining the blast effect of a nuclear explosion. A 1-megaton bomb is equivalent in destructive potential to 1 million tons of TNT.

megestrol acetate. (17-hydroxy-6-methylpregna-4,6-diene-3,20-dione acetate).

CAS: 595-33-5. $C_{25}H_{34}O_4$.

Properties: Crystals. Mw 384.50, mp 214-216C. Soluble in water.

Use: Antineoplastic and oral contraceptive.

meclumine diatrizoate. (methylglucamine diatrizoate; diatrizoate methylglucamine).

CAS: 131-49-7. $(CH_3CONH)_2C_6H_4COOH \cdot CH_3NHCH_2(CH_2O)_4CH_2OH$.

Properties: Available in solution for injection, pH between 6.0-7.6.

Grade: USP (as injection).

Use: Medicine (radiopaque medium).

Note: The iodipamide and iothalamate are also available.

Meisenheimer complexes. Sigma-complexes obtained as brightly colored solutions on interaction of 1,3,5-trinitrobenzene to similar compounds.

Meisenheimer rearrangement. Rearrangement of tertiary amine oxide to *O,N,N*-trisubstituted hydroxylamines.

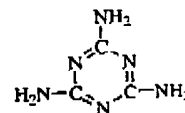
meitnerium. Mt. A transactinoid element. Atomic number 109. Very short half-life.

MEK. Abbreviation for methyl ethyl ketone.

"MEKON" (Baker Petrolite). TM for a hard grade of petroleum microcrystalline wax.

melamine. (cyanurtriamide; 2,4,6-triamino-*s*-triazine).

CAS: 108-78-1.



Properties: White, monoclinic crystals. D 1.573 (14C), mp 354C. Sparingly soluble in water, glycol, glycerol, pyridine; very slightly soluble in ethanol; insoluble in ether, benzene, carbon tetrachloride. Nonflammable.

Derivation: (1) By heating urea and ammonia. The resulting mixture of isocyanic acid and ammonia

MELAMINE RESIN

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reacts over a solid catalyst at approximately 400°C to form melamine. (2) From cyanamide, dicyanamide, or cyanuric chloride.

Method of purification: Recrystallization from water.

Grade: 99% min.

Hazard: Toxic by ingestion, skin, and eye irritant.

Use: Melamine resins, organic syntheses, leather tanning.

melamine resin. A type of amino resin made from melamine and formaldehyde. The first step in resin formation is the production of trimethylol melamine, $C_3N_3(NHCH_2OH)_3$, the molecules of which contain a ring with three carbon and three nitrogen atoms, the $-NHCH_2OH$ groups being attached to the carbon atoms. This molecule can combine further with others of the same kind by a condensation reaction. Excess formaldehyde or melamine can also react with trimethylol melamine or its polymers, providing many possibilities of chain growth and cross-linking. The nature and degree of polymerization depend upon pH, but heat is always needed for curing. Melamine resins are more water- and heat-resistant than urea resins. They may be water-soluble syrups (low molecular weight) or insoluble powders (high molecular weight) dispersible in water. Widely used as molding compounds with α -cellulose, wood flour, or mineral powders as fillers and with coloring materials; also for laminating, boil-proof adhesives, increasing wet strength of paper, textile treatment, leather processing, and for dinnerware and decorative plastic items. Butylated melamine resins are formed by incorporating butyl or other alcohols during resin formation, whereupon the $-NHCH_2OH$ groups convert to $-NHCH_2OC_4H_9$. These resins are soluble in paint and enamel solvents and in surface coatings, often in combination with alkyds. They give exceptional curing speed, hardness, wear resistance, and resistance to solvents, soaps, and foods. Melamine-acrylic resins are water soluble and used for formation of water-base industrial and automotive finishes. See urea-formaldehyde resin.

melaniline. See diphenylguanidine.

melanin. A brownish-black pigment that occurs normally in the retina, skin, and hair of higher animals with the exception of albinos. Formed from tyrosine by the action of tyrosinase.

melissic acid. (triacontanoic acid).

$CH_3(CH_2)_{28}COOH$. A long-chain fatty acid.

Properties: Crystalline solid. Mp 94°C. Soluble in benzene and hot alcohol; insoluble in water. Combustible.

Derivation: By oxidation of 1-triacontanol, occurs in minor amounts in many plant and insect waxes and in montan wax.

Use: Biochemical research.

melissyl alcohol. See 1-triacontanol.

melittin.

CAS: 37231-28-0. $C_{131}H_{223}N_{39}O_{31}$. A polypeptide derived from bee venom that has strong antibacterial activity, especially against *Staphylococcus aureus* 80 which is resistant to penicillin. It inhibits growth of many Gram-positive and Gram-negative bacteria.

Properties: White powder. Water soluble.

Use: Antirheumatic drug.

mellitate. An ester or salt of mellitic acid.

"Melmac" [Cytec]. TM for products molded from melamine-formaldehyde resins.

"Melonite" [Kolene]. TM for an anhydrous molten salt bath used to nitride ferrous work pieces. The bath operates at a subcritical temperature and produces a continuous ϵ -iron nitride layer on carbon steels, and alloy nitride surfaces on alloy steels. **Use:** For many components to enhance fatigue strength, wear and corrosion resistance. It is also used for tooling and dies to extend service life.

melpalalan. (*p*-di(2-chloroethyl)aminophenylalanine; formerly called sarcosylin).

CAS: 148-82-3. $(ClCH_2CH_2)_2NC(H)CH_2CH(NH_2)COOH$. Melpalalan is both the USAN name for the acid and the generic name for the hydrochloride.

Properties: A nitrogen mustard, crystals. Mp 180°C.

Grade: ND (in medicine, for the acid).

Hazard: Strong irritant to eyes and mucous membranes.

Use: Medicine, insect chemosterilant.

melt index. The viscosity of a thermoplastic polymer at a specified temperature and pressure, it is a function of the molecular weight. Specifically, the number of grams of such a polymer that can be forced through a 0.0825-inch orifice in 10 minutes at 190°C by a pressure of 2160 g.

melting point. (mp) The melting point or freezing point of a pure substance is the temperature at which its crystals are in equilibrium with the liquid phase at atmospheric pressure. The term *melting point* is used when the equilibrium temperature is approached by heating the solid. Ordinarily, mp refers to temperatures above 0°C, the melting point of ice. The terms *melting point* and *freezing point* are often used interchangeably, depending on whether the substance is being heated or cooled. The number of calories required to convert one mole of pure crystals to the liquid state is called the molar heat of fusion.

"Melurac" [Cytec]. TM for urea-melamine-formaldehyde condensation products used mainly

"AVICEL"

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"Avicel" [FMC]. TM for microcrystalline cellulose, a highly purified particulate form of cellulose.

Properties: Particle size ranges from less than 1 to 150 microns (average varies with grade), density 1.55 (bulk density 0.3-0.5). Insoluble in dilute acids, organic solvents, oils; swells in dilute alkali. Dispersible in water to form stable gels or pourable suspensions. Adsorbs oily and syrupy materials.

Use: Aid to stabilization and emulsification, ingredient in foods, suspending agent, binder and hardening agent in tabletting, separatory medium in column and thin-layer chromatography, pure cellulose raw material.

avidin. A protein occurring in egg white, where it constitutes approximately 0.2% of the total protein. It has the property of combining firmly with biotin and rendering it unavailable to organisms, since proteolytic enzymes do not destroy the avidin-biotin complex. Avidin loses its ability to combine with biotin when subjected to heat; hence cooked egg white does not lead to biotin deficiency.

"Avitene" [FMC]. TM for a microcrystalline form of collagen.

"Avitex" [Du Pont]. TM for a group of textile softeners, lubricants, and antistatic agents. Both anionic and cationic types are available.

"Avitone" [Du Pont]. TM for a group of chemical compounds based on hydrocarbon sodium sulfonates that are used principally as softening lubricating and finishing agents for textiles, leather, and paper.

avocado oil. An edible oil high in unsaturated fatty acids.

Properties: Greenish oil; faint odor, bland taste. D 0.91, acid value 1-7, saponification value 177-198, iodine value 71-95, fp 7-9C, refrindex 1.461-1.465 (40C).

Use: Cosmetic creams, hair conditioners, suntan preparations, salad oils.

Avogadro's law. A principle stated in 1811 by the Italian chemist Amadeo Avogadro (1776-1856) that equal volumes of gases at the same temperature and pressure contain the same number of molecules regardless of their chemical nature and physical properties. This number (Avogadro's number) is 6.025×10^{23} . It is the number of molecules of any gas present in a volume of 22.41 L and is the same for the lightest gas (hydrogen) as for a heavy gas such as carbon dioxide or bromine. Avogadro's number is one of the fundamental constants of chemistry. It permits calculation of the amount of pure substance in a mole, the basis of stoichiometric relationships. It also makes possible determination of how much heavier a simple molecule of one gas is than that of another; as a result the relative molecular weights of

gases can be ascertained by comparing the weights of equal volumes. Avogadro's number (conventionally represented by "N" in chemical calculations) is now defined to be the number of atoms present in 12 grams of the carbon-12 isotope (one mole of carbon-12) and can be applied to any type of chemical entity.

See mole.

"Axell" [Accurate]. TM for polyclonal antibodies.

"AxellPrep" [Accurate]. TM for products for the isolation of human mononuclear cells.

axis of symmetry. An imaginary line in a crystal. The crystal, when rotated around this line through 360°, shows the same crystal face, at least twice.

"Axyll" [Accurate]. TM for monoclonal antibodies.

aza-. Prefix indicating the presence of nitrogen in a heterocyclic ring.

3-azabicyclo(3,2,2)nonane. $C_7H_{11}N$.

Properties: White-tan solid. Mp 180C (sublimes). Partly soluble in water; solubility decreases with an increase in temperature. Readily soluble in alcohol, bulk d 4.67 lb/gal (20C).

Use: Intermediate for the preparation of pharmaceuticals and rubber chemicals.

8-azaguanine. (5-amino-1,4-dihydro-7H-1,2,3-triazolo[4,5-d]pyrimidin-7-1).

CAS: 134-58-7. $C_4H_5N_5O$.

Properties: Crystals from dilute aqueous sodium hydroxide. Insoluble in water, alcohol, and ether.

Grade: Refined.

Use: Inhibitor of purine synthesis.

azathioprine. (Imuran). An immunosuppressive drug administered for the purpose of inhibiting the natural tendency of the body to reject foreign tissues by one or more types of immunizing reactions, i.e., formation of leucocytes or antibodies. It has been used with some success in cases of kidney and liver transplants.

6-azauridine. (6-azauracil riboside; as-triazine-3,5(2H,4H)dione riboside).

CAS: 54-25-1. $C_5H_7N_5O_4$.

Derivation: Microbiological fermentation.

Use: Research on cell formation and cancer.

azelaic acid. (nonanedioic acid; 1,7-heptanedicarboxylic acid). $HOOC(CH_2)_7COOH$.

Properties: Yellowish to white, crystalline powder. Mp 106C, bp 365C (decomposes). Soluble in hot water, alcohol, and organic solvents.

Derivation: Oxidation of oleic acid by ozone.

CNI.
ngent odor;
le in water,

with iodine.
n. A poison.

a 98% sodi-
ystalline sol-
esh, retained

n and inges-

de.

anoctha-

, bp 200C, d

(methyl-

ible in water.
estion, strong

IC, refr index
lvents and ke-

thyl-O-(4-

:(0.1 mm Hg).
cohol, metha-
. Decomposed
nt.
hibitor.

rile; nicoti-

2C, mp 49.6C.

4C, mp 78.5C.
most organic

cyanuramide. See ammeline.

cyanurdiamide. See ammeline.

cyanuric acid. (tricarbinide; tricyanide).
CAS: 108-80-5. $\text{HOCHC(OH)NC(OH)N}\cdot 2\text{H}_2\text{O}$.
Properties: White crystals; odorless; slight bitter taste. D 1.768, decomposes to cyanic acid at 320C. Soluble in hot water and concentrated mineral acids, insoluble in alcohol and acetone.
Use: Intermediate for chlorinated bleaches, selective herbicide, whitening agents.
See isocyanuric acid.

cyanuric chloride. (2,4,6-trichloro-1,3,5-triazine).
CAS: 108-77-0. $\text{C}_3\text{N}_3\text{Cl}_3$ (cyclic).
Properties: Crystals; pungent odor. D 1.32, mp 146C, bp 194C (764 mm Hg). Soluble in chloroform, carbon tetrachloride, hot ether, dioxane, ketones; very slightly soluble in water (hydrolyzes in cold water).
Hazard: Toxic by ingestion and inhalation.
Use: Chemical synthesis, dyestuffs, herbicides, optical brighteners.

cyanurtriamide. See melamine.

cyclamate. Group name for synthetic nonnutritive sweetening agents derived from cyclohexylamine or cyclamic acid. The series includes sodium, potassium, and calcium cyclamates. As a result of a study made on laboratory animals in 1970, which indicated that these compounds cause genetic damage in chick embryos and cancer in rats at high dosage, their use in beverages and food products was banned in the U.S. More recent research has failed to confirm the carcinogenicity of these compounds in laboratory animals even at levels up to 240 times human intake. Notwithstanding these results, FDA has not yet withdrawn its ban on use of cyclamates as food additives or as table-top sweeteners, in view of the continuing uncertainty about their safety.
See sweetener, nonnutritive.

cyclamen alcohol. The alcohol corresponding to cyclamen aldehyde, used as a stabilizer of cyclamen aldehyde.

cyclamen aldehyde. (methyl-p-isopropylphenylpropyl aldehyde).
CAS: 103-95-7. $(\text{CH}_3)_2\text{CHC}_6\text{H}_4\text{CH}(\text{CH}_3)\text{CH}_2\text{CHO}$.
Properties: Colorless liquid; floral odor. D 0.949-0.959, refr index 1.507-1.520. Soluble in 1 volume of 80% alcohol, and in most oils.
Grade: FCC.
Use: Perfumery, soap perfumes, flavoring.

cyclamic acid. (USAN name for cyclohexanesulfamic acid; cyclohexylsulfamic acid).
CAS: 100-88-9. $\text{C}_6\text{H}_{11}\text{NHSO}_3\text{H}$.

Properties: Odorless, white, crystalline solid; sweet-sour taste. Mp 170C. Strong, stable acid; soluble in water and alcohol; insoluble in oils.
Hazard: Suspected carcinogen.
Use: Nonnutritive sweetener, acidulant.
See cyclamate.

cyclic compound. See carbocyclic.

cyathrin. (3-(2-cyclopentenyl)-2-methyl-4-oxo-2-cyclopentenyl ester of chrysanthemum monocarboxylic acid).
Properties: Viscous, brown liquid. Soluble in petroleum solvents and other common organic solvents. Formulated principally as liquid for spray applications corresponding to natural pyrethrins.
Hazard: Toxic by inhalation and ingestion.
Use: Insecticide with applications similar to allethrin and other analogs.
See furthrin; barthrin; ethythrins.

cyclic compound. An organic compound whose structure is characterized by one or more closed rings, it may be mono-, bi-, tri-, or polycyclic depending on the number of rings present. There are three major groups of cyclic compounds: (1) alicyclic, (2) aromatic (also called arene), and (3) heterocyclic. For more detailed information, consult specific entries.

cyclizine hydrochloride. (1-diphenylmethyl-4-methylpiperazine hydrochloride).
CAS: 303-25-3. $(\text{C}_6\text{H}_5)_2\text{CHC}_6\text{H}_4\text{N}_2\text{CH}_3\cdot\text{HCl}$.
Properties: White, crystalline powder or small colorless crystals; odorless or nearly so; bitter taste. Mp 285C (decomposes). Slightly soluble in water, alcohol, chloroform; insoluble in ether; pH (2% solution) 4.5-5.5.
Grade: USP.
Use: Medicine (antiemetic).

cycloaliphatic epoxy resin. (cycloalkenyl epoxides). A polymer prepared by epoxidation of multicycloalkenyls (polycyclic aliphatic compounds containing carbon-carbon double bonds) with organic peracids such as peracetic acid. Resistant to high temperatures.
Use: Space vehicles, outdoor electrical installations in polluted and humid atmospheres, high-temperature adhesives.

cyclobarbital. [5-(1-cyclohexenyl)-5-ethylbarbituric acid; tetrahydrophenobarbital].
CAS: 52-31-3. $\text{C}_{12}\text{H}_{16}\text{N}_2\text{O}_4$.
Properties: White crystals or crystalline powder; odorless; bitter taste. Mp 170-174C. Soluble in alcohol or ether; very slightly soluble in cold water or benzene.
Derivation: Hydrogenation of phenobarbital with colloidal palladium in alcohol as a catalyst.
Hazard: See barbiturates.
Use: Medicine (hypnotic, sedative).